

REMARKS/ARGUMENTS

Favorable reconsideration of this Application, as presently amended and in light of the following discussion, is respectfully requested.

This Amendment is in response to the Office Action mailed on July 7, 2005. Claims 1-20 are pending in the Application, Claims 1-5, 7, 8, 10, 11, and 13-15 stand rejected, and Claims 6, 9, and 12 have been objected to as being dependent upon rejected base claims, but would be allowed if rewritten in independent form. Claims 2-12 and 15 are amended and new Claims 16-20 are added by the present Amendment.

The indication of allowable subject matter is noted with appreciation. However, because Applicants believe Claim 1 contains patentable subject matter, Claims 6, 9, and 12 are maintained in their dependent form at the present time.

Summarizing the outstanding Office Action, Claims 7-9 were objected to because of several informalities; Claim 15 was objected to under 37 C.F.R. § 1.75(c) as being in improper form; Claims 1-5, 7, 8, 10, 13, 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Miraucourt et al. (U.S. Patent No. 5,217,347, hereinafter “Miraucourt”); and Claims 1-5, 7, 10, 11, 13, and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yu et al. (U.S. Patent No. 6,394,749, hereinafter “Yu”).

In response to the outstanding objection to the claims, Applicants note with appreciation the time taken by the Examiner to identify specific areas needing revisions. Applicants have amended the claims, including correction of the cited informalities and the dependency of Claim 15, and respectfully request reconsideration of the objection thereto. In addition, in view of the present amendment, it is believed that all pending claims are definite and no further rejection on that basis is anticipated. If, however, the Examiner disagrees, the

Examiner is invited to telephone the undersigned who will be happy to work with the Examiner in a joint effort to derive mutually acceptable language.

As to the obviousness rejections, Applicants respectfully submit that Miraucourt and Yu cannot support a *prima facie* case of obviousness of the invention recited in Claim 1. This is so for at least two reasons. First, these references do not teach or suggest all the claimed features. Secondly, the asserted motivation to modify the references disregards the applicable engineering fundamental principles involved.

According to a feature of the invention as set forth in Claim 1, an annular platform for the nozzle of a low-pressure turbine in a turbomachine is recited, comprising, among other features, *at least one fixed vane disposed downstream from at least one moving blade of a high-pressure turbine, said platform defining an aerodynamic channel which extends longitudinally between a leading edge of said fixed vane and a trailing edge of said moving blade*, said platform further comprising an upstream portion extending longitudinally beyond the leading edge of said fixed vane towards the trailing edge of said moving blade so as to lengthen said aerodynamic channel.

As explained in Applicants' specification, the present invention relates to a nozzle of a low-pressure turbine. The object of the invention is to lengthen the aerodynamic channel of the low-pressure turbine in order to improve its efficiency. As such, the leading edges of the fixed vanes of the low-pressure turbine are spaced apart from the trailing edges of the moving blades of the high-pressure turbine disposed downstream from the low-pressure turbine.

Miraucourt does not relate to a nozzle of a low-pressure turbine. It relates to a row of fixed vanes adjacent to the exit of a combustion chamber in a gas turbine engine. As recited in Claim 1, the fixed vanes of this invention are disposed upstream from the combustion chamber. Thus, this document fails to disclose the following feature of original claim 1: "*the*

*platform comprises an upstream portion extending longitudinally beyond the leading of the fixed vane towards the trailing of the moving blade" (there is no moving blade disposed downstream from the fixed vanes of Miraucourt).*

As to Yu, that reference also does not relate to a nozzle of a low-pressure turbine. Indeed, as illustrated by Figs. 1 and 2, the fixed vanes 14 are not disposed upstream from a high-pressure turbine. The structure 50 (Fig. 2) appears to be attached to the inner platform 16. As the inner platform is fixed, the structure 50 can not be a moving blade of a high-pressure turbine. Thus, Yu also fails to disclose the above-mentioned feature of original Claim 1.

In addition, as acknowledged by the Office, neither Miraucourt nor Yu discloses stator vane nozzles for a low-pressure turbine nozzle. As such, these references cannot support a *prima facie* case of obviousness of Claim 1.

As to the motivation to modify the cited references, Applicants respectfully submit that the statement that "it would have been obvious to a person having ordinary skill in the art at the time the invention was made, to apply the cooling circuit for a turbine nozzle of Miraucourt or Yu to a low-pressure turbine nozzle for the purpose of providing a cooling system for a low-pressure turbine nozzle" disregard the fundamental difference between vanes that are design to operate downstream of a rotor and vanes that are designed to operate at a location where the flow is substantially axial, i.e., a flow that has not yet passed through a rotor as in the case of a gas flow discharged from a combustor.

It is well known by those of ordinary skill in the art that the aerodynamic design of turbine stators configured to receive an air flow without a significant rotational velocity component, such as the vanes of Miraucourt and Yu, is different than the design of vanes configured to receive an air flow with a significant tangential, or rotational velocity

component, such as the fixed vanes of a low-pressure turbine as recited in Claim 1. As such, the use of the vanes of Miraucourt and Yu as fixed vanes of a low-pressure turbine would simply not work because those vanes were not designed to handle an air or gas flow with a substantial rotational velocity component.

In addition, the fact that the vanes of Miraucourt and Yu are vanes disposed adjacent to a combustor, they are naturally designed to operate at an environment with a temperature that is significantly relatively higher than the fixed vanes of the low-pressure turbine recited in Claim 1. It is well known that, as the flow in the turbine expands, its temperature drops significantly. As such, Applicants respectfully submit that those of ordinary skill in the art would not be motivated to use a high-pressure nozzle in a low-pressure turbine so as “to apply the cooling circuit for a turbine nozzle of Miraucourt or Yu to a low-pressure turbine nozzle for the purpose of providing a cooling system for a low-pressure turbine nozzle” because such a proposition would require the unnecessary use of a sophisticated device at a location where the local temperature is relatively lower than the temperature for which that device was designed to operate, thereby unnecessarily increasing the overall cost of the engine and potentially reducing engine performance in view of the increased cooling air flow requirements. Applicants respectfully submit that a conclusion to the contrary can only be reasonably explained by the use of impermissible hindsight.

The presence or absence of a motivation to combine or modify references is a question of fact,<sup>1</sup> which should be evaluated under the substantial evidence standard as required by the administrative Procedures Act.<sup>2</sup> Substantial evidence is “such relevant

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<sup>1</sup> See, for example, *In re Dembicza*k, 175 F.3d 994, 1000 (Fed. Cir. 1999).

<sup>2</sup> *Dickenson v. Zurko*, 119 S. Ct. 1816, 50 USPQ 2d 1930 (1999); *In re Gartside*, 203 F.3d 1305, 53 USPQ 2d 1769 (Fed. Cir. 2000).

evidence as a reasonable mind might accept as adequate to support a conclusion.”<sup>3</sup> Based on such a standard, the MPEP requires “[e]xplicit findings on motivation or suggestion to select the claimed invention should also be articulated in order to support a 35 U.S.C. 103 ground of rejection. . . Conclusory statements of similarity or motivation, without any articulated rational or evidentiary support, do not constitute sufficient factual findings.”<sup>4</sup>

Appellants respectfully submit that the Office’s argument in support of a motivation or suggestion to modify Miraucourt or Yu has overlooked the fact that “the strongest rationale for combining references is a recognition, expressly or impliedly in the prior art or *drawn from a convincing line of reasoning based on established scientific principles* or legal precedent, that some advantage or expected beneficial result would have been produced by their combination.”<sup>5</sup> Further, Applicants respectfully submit that the arguments put forth by the Office on this issue have not met the recognized burden that “when the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the Examiner to explain why the combination of the teachings is proper.”<sup>6</sup> As hereinabove explained, Applicant respectfully submit the above-noted burden has not been met by the Office.

Accordingly, Miraucourt and Yu, neither individually nor in any combination, make obvious the invention recited in Claim 1. Claims 2-5, 7, 8, 10, 11, and 13-15 should be allowed, among other reasons, as depending either directly or indirectly from Claim 1, which should be allowed as just explained.

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<sup>3</sup> *In re Gartside*, 203 F.3d 1305, at 1312 (Fed. Cir. 2000).

<sup>4</sup> MPEP § 2144.08 III.

<sup>5</sup> *In re Sernaker*, 702 F.2d 989, 994-95, 217 USPQ 1, 5-6 (Fed. Cir. 1983), emphasis added.

<sup>6</sup> *Ex parte Skinner*, 2 USPQ2d 1788 (Bd. Pat. App. & Inter. 1986). M.P.E.P. §2142.

In addition, Claims 2-5, 7, 8, 10, 11, and 13-15 are further considered allowable as they recite other features of the invention that are not disclosed, taught, or suggested by the applied references when those features are considered within the context of the subject matter recited in independent Claim 1. For the foregoing remarks, Applicants respectfully request withdrawal of the rejection of Claims 1-5, 7, 8, 10, 11, and 13-15 under 35 U.S.C. § 103(a).

Finally, Applicants have submitted new Claims 16-20, which find non-limiting support on the subject matter originally disclosed as follows: (1) as to Claim 16, on page 8, lines 1-6 of the Disclosure; (2) as to Claim 17, on page 12, lines 1-7; (3) as to Claims 18 and 19, on page 6, lines 3-12; and (4) as to Claim 20, on page 10, lines 13-24. Therefore, new Claims 16-20 are not believed to raise a question of new matter.<sup>7</sup> Because Claims 16-20 incorporates by reference all of the features of Claim 1, in view of the above-presented remarks, Applicants respectfully submit that new Claims 16-20 should be allowed over Miraucourt and Yu.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-20 is earnestly solicited.

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<sup>7</sup> See MPEP 2163.06 stating that "information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter."

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representatives at the below listed telephone number.

Respectfully submitted,

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